

REMARKS

Applicant has reviewed the Office Action mailed April 13, 2007 and has amended the claims accordingly. At the time of the Office Action, Claims 137-148 were pending in the application. Claims 137-144 and 146-147 are amended and Claim 145 is cancelled without prejudice or disclaimer.

In response to our telephone conversation of today, Applicant submits the following remarks.

Rejection of claims 137-148 under 35 U.S.C. 102(e):

Claims 137-148 were rejected under 35 U.S.C. 102(e) as being anticipated by Urayama et al. (US Patent 6,650,061). The Examiner states:

“With regards to claims 137, Urayama disclose at least one carbon nanotube (element 6 figure 3d) electrically coupled to a patterned conductive layer (element 2c figure 2) within a horizontally oriented substrate (figure 3f), wherein substantially all of the carbon nanotubes (element 6 figure 3d) are vertically oriented”

“With regards to claims 139, Urayama discloses wherein the substrate comprises a substrate material from a class consisting of undoped silicon, doped silicon, crystalline silicon, polysilicon, silicon nitride, undoped silicon dioxide (element 3 figure 6a), and doped silicon dioxide.”

Urayama et al. fail to disclose, teach, or suggest a device with a silicon layer having nano-sized diameter pores, wherein the silicon pores are used to fabricate carbon nanotubes. Instead, Urayama et al. discloses device having alumina pores that are used to fabricate carbon nanotubes. For example Urayama et al. disclose (underlines added):

“Next, referring to FIGS. 6(a) through 6(e) that are cross-sectional views taken along line x-y of FIG. 5(a), an explanation will be given of the manufacturing method.

Aluminum of 3 μm serving as the pre-oxide 4a was deposited at the portions thus subjected to the removal by a sputtering method. The aluminum deposited on the insulation layer 3 was removed, and also embedded, by a CMP method (FIG. 6(a)). Then, this was subjected to an anodic oxidation in a solution of oxalic acid so that the aluminum was oxidized and pores 5 were formed in the alumina that was the insulation film 4. In this case, since a barrier layer was formed on the electrode interface of the oxidized film, the pore 5 was not allowed to penetrate to reach the electrode.

Therefore, in order to remove the barrier layer in the pore 5, a dry etching method was used; thus, only the barrier layer was removed (FIG. 6(b)). The pores 5 thus formed had a diameter of 60 nm and a pitch of 100 nm. After the formation of the pores 5, ethylene and hydrogen, which were materials of carbon nanotubes, were allowed to flow in the plasma CVD process so as to form carbon nanotubes that were to serve as emitters 6 in the pores 5. Here, the growth was completed at a level in which the tip of the carbon nanotube was maintained slightly lower than the alumina surface (approximately, 60 nm) (FIG. 6(c)).”

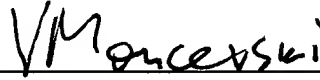
Urayama et al. disclose use of silicon in one of the substrate layers, however, this silicon layer does not contain nano-sized diameter silicon pores and this silicon layer is not used to fabricate carbon nanotubes.

The Applicant’s Specification discloses use of silicon substrate having nano-sized diameter pores, wherein the silicon pores are used to fabricate carbon nanotubes. For example, sections “Substrate for CNMEDs” and “Electrochemical etching process” of the Specification describe the preferences of using silicon substrate and silicon pores for making carbon nanotube devices. For example, one preference of using silicon substrate is that it can be doped to have a better control over the size and the distribution of the silicon pores. Another preference of a silicon substrate is that it can be used to generate silicon pores in the range of 1 to 100 nanometers that in turn can be used to fabricate carbon nanotubes with similar diameters.

Accordingly, the Applicant requests allowance of the amended Claim 137 and requests allowance of its dependent claims. Applicant believes the application is in condition

for allowance and requests early allowance. Should the Examiner wish to discuss this case in order to further the prosecution, it is requested that the Examiner contact the undersigned at his convenience.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "VMancevski", is written over a horizontal line.

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